

What is claimed is:

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- 5 1. A method of detecting thiopurine methyltransferase (TPMT) comprising:  
obtaining a biological sample from an individual; and assaying for the level of a  
TPMT-catalyzed reaction product.
- 10 2. The method of claim 1 wherein the assaying includes the steps of: (a)  
contacting the biological sample with an antibody that binds to a methylated  
reaction product of TPMT to form a complex; and (b) detecting said complex.
- 15 3. The method of claim 2 wherein the antibody binds to 6-methylmercaptopurine  
(6-MMP).
4. The method of claim 3 wherein the 6-MMP is free or bound to a carrier  
molecule or solid support.
- 20 5. The method of claim 1 wherein the antibody is a polyclonal antibody.
6. The method of claim 1 wherein the antibody is a monoclonal antibody.
- 25 7. The method of claim 1 wherein the biological sample is selected from the group  
consisting of blood, serum, and saliva.
8. The method of claim 2 wherein the detecting step further includes the substep  
of linking or incorporating a label into the antibody.
9. The method of claim 2 wherein the detecting step uses ELISA-based  
immunoenzymatic detection.

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10. The method of claim 9 wherein the ELISA-based immunoenzymatic detection comprises the steps of: a) covalently binding substrate 6-mercaptopurine (6-MP) to a carrier protein to form a conjugate; b) coating the wells of an ELISA plate with the conjugate; c) methylating the conjugate; and d) measuring the optical signal of the methylated conjugate.

11. The method of claim 10 wherein the optical signal is measured at about 450 nm.

12. A rapid immunomigration cassette comprising: a) an immunocassette; b) chromatography paper, said chromatography paper having antibody specific to a methylated reaction product of TPMT and additional capture molecule dried thereon, said antibody being affixed to gold molecules, said chromatography paper being encased in the immunocassette; c) a biological sample suspected of containing methylated reaction product of TPMT.

13. The immunomigration cassette of claim 12 wherein the antibody is anti-6-MMP.

14. The immunomigration cassette of claim 12 wherein the capture molecule is selected from the group consisting of avidin and Protein A.

15. The immunomigration cassette of claim 12 wherein the immunocassette includes a transparent window for visualizing an antigen-antibody-gold particle complex formed on the chromatography paper.

16. The immunomigration cassette of claim 12 further including an ELISA assay.

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17. The immunomigration cassette of claim 16 wherein the ELISA assay comprises: a) a biological sample suspected of containing TPMT; a) antibody specific to a methylated reaction product of TPMT; b) a 6-mercaptapurine (6-MP)-carrier protein conjugate; c) an ELISA plate; d) means for labeling the conjugate that is methylated by the TPMT; and e) means for measuring the optical signal of the methylated conjugate.

18. A kit for quantitatively measuring the levels of TPMT in a biological sample comprising: a) a biological sample suspected of containing TPMT; b) an ELISA plate, said ELISA plate being coated with a carrier protein-6-MP conjugate; c) antibody specific to a methylated reaction product of TPMT; d) means for labeling the conjugate that is methylated by the TPMT; and e) means for measuring the optical signal of the methylated conjugate.

19. The kit of claim 18 whereby the biological sample is selected from the group consisting of blood, serum, and saliva.

20. The kit of claim 18 whereby the carrier protein is BSA.

21. The kit of claim 18 whereby the labeling means is an immunostain.

22. The kit of claim 21 whereby the immunostain comprises a peroxidase conjugate and a peroxidase substrate.

23. The kit of claim 22 whereby the peroxidase conjugate is Protein A-Horseradish peroxidase.

24. The kit of claim 22 whereby the peroxidase substrate is tetramethylbenzidine.

25. The kit of claim 18 whereby the methylated reaction product of TPMT is 6-MMP.